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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,656

10/04/2006

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EXAMINER

ORLANDO, AMBER ROSE

ART UNIT

PAPER NUMBER

1774

NOTIFICATION DATE

DELIVERY MODE

12/29/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/596,656

Applicant(s)

BARDON ET AL.

Examiner

AMBER ORLANDO

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 November 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-19 and 36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-19 and 36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This action is in response to the correspondence filed 04/19/2010.

Claims 1-11 and 20-35 are cancelled.

Claim 36 is new.

Claims 12-14, 16, 17 and 19 are amended.

Claims 12-14, 16, 17 and 19 are rejected.

Claims are pending and have been examined.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 12-19 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. WO03/048072 (translation provided by US 7,138,168) in view of Merriman US 2,952,579 and Adiletta US 5,228,891.

5. For claims 12, the Fujita et al. reference discloses a filtration structure of at a particulate filter for exhaust gases of an internal combustion engine, capable of withstanding successive regeneration phases (column 7, lines 44-46), of the type comprising; at least first and second filtration element (figures 1 a and b objects 2, 3, 7, 12 and 8), each filtration element being made of a ceramic material (column 6, lines 30-41) having an inlet face, a discharge face and lateral faces and comprising an assembly of adjacent inlet and outlet conduits which are separated by porous filtration walls and extend parallel with a longitudinal direction (X-X') from inlet face to the discharge face of the filtration element, the inlet conduits, open in the region of the inlet face and closed in the region of the discharge face, and the outlet conduits open in the region of the discharge face and closed in the region of the inlet face, being arranged transposed (column 7, lines 27-49), one first planar lateral face of the first filtration element and one second planar lateral face of the second filtration element are arranged opposite each other (figure 2 object 12); a joint for connecting said first and second planar lateral faces

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to each other, said joint extending between said first and second lateral faces and comprising a binding agent (figure 1b objects 12 and 8), characterized in that said binding agent is a ceramic cement (column 3, lines 55-56). The reference does not disclose the joint comprising reinforcement means, and the reinforcement means is embedded in said binding agent and comprises at least one active portion, which is generally of substantially planar form, has a mesh-like structure giving to the active portion its own coherence, produced from a metal material and constitutes preferred axis for propagation of the thermal flux within the joint and for the orientation of the cracks that may be produced in the joint.

6. The Merriman reference discloses the joint comprising reinforcement means, and the reinforcement means is embedded in said binding agent and comprises at least one active portion, which is generally of substantially planar form, has a mesh-like structure giving to the active portion its own coherence (claim 1).

7. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Fujita et al. reference to include the joint comprising reinforcement means, and the reinforcement means is embedded in said binding agent and comprises at least one active portion, which is generally of substantially planar form, has a mesh-like structure giving to the active portion its own coherence (Merriman claim 1) because this provides a reinforcing means for increasing the strength of the adhesive bond.

8. The Adiletta reference discloses the active portion being produced from a metal material (column 6, lines 19-31).

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9. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Fujita et al. reference the active portion being produced from a metal material (Adiletta column 6, lines 19-31) and therefore would constitute preferred axis for propagation of the thermal flux within the joint because this allows the supporting material to withstand high temperatures that would be subjected to the DPF of Fujita et al. as it would be exposed to the extreme exhaust temperatures as well as filter regeneration temperatures.

10. All of the physical limitations of claim 12 were known or would have been obvious to one having ordinary skill in the art (see above). Therefore the combination of the Fujita et al. Merriman and Adiletta references as shown above, would result in the same effects of the present invention when used e.g. the orientation of the cracks that may be produced in the joint.

11. For claim 13, the Fujita et al. reference does not disclose that the active portion comprises a plurality of beams which are arranged substantially parallel with the longitudinal direction (X-X').

12. The Adiletta reference discloses the active portion comprises a plurality of beams which are arranged substantially parallel with the longitudinal direction (figure 3 object 59).

13. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Fujita et al. reference so that the active portion comprises a plurality of beams which are arranged substantially parallel with the

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longitudinal direction (Adiletta figure 3 object 59) because this provides support to the filtering element.

14. For claim 14, the Fujita et al. reference does not disclose the active portion comprises a plurality of cross-members which connect the beams and which are arranged substantially parallel with a second direction, distinct from the first longitudinal direction.

15. The Adiletta reference discloses the active portion comprises a plurality of cross-members which connect the beams and which are arranged substantially parallel with a second direction, distinct from the first longitudinal direction (figure 3 object 59).

16. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Fujita et al. reference so that the active portion comprises a plurality of cross-members which connect the beams and which are arranged substantially parallel with a second direction, distinct from the first longitudinal direction (Adiletta figure 3 object 59) because this provides support to the filtering element.

17. For claim 15, the Fujita et al. reference does not disclose the total volume of the apertures delimited by the beams and the cross-members is greater than the total volume of the beams and the cross-members.

18. The Adiletta reference discloses the total volume of the apertures delimited by the beams and the cross-members is greater than the total volume of the beams and the cross-members (as can be easily seen figure 3 object 59).

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19. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Fujita et al. reference to include the total volume of the apertures delimited by the beams and the cross-members to be greater than the total volume of the beams and the cross-members (Adiletta figure 3 object 59) because this allows the filter to be supported and for the flow of air.

20. For claim 16, the Fujita et al. reference discloses the binding agent having at least two active portions opposite said first lateral face and another planar lateral face of the first filtration element, said other planar lateral face being adjacent said first planar lateral face, and the active portions are connected to each other (figure 1b objects 12 and 8, column 8, lines 11-20 states that a plurality of honeycomb segments are bonded together into a honeycomb structure, this would include honeycomb a honeycomb structure as that shown in the current invention figure 1 object 11). The reference does the reinforcement element embedded in the binding agent, and therefore having the reinforcement element having at least two active portions opposite said first lateral face and another planar lateral face of the first filtration element, said other planar lateral face being adjacent said first planar lateral face, and the active portions are connected to each other.

21. The Merriman reference discloses the reinforcement element being embedded in the binding agent (claim 1) being used within the binding agent.

22. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Fujita et al. reference to include the reinforcement element being embedded in the binding agent (Merriman claim 1) and

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therefore having at least two active portions opposite said first lateral face and another planar lateral face of the first filtration element, said other planar lateral face being adjacent said first planar lateral face, and the active portions are connected to each other because this provides a greater structural integrity to the adhesive and therefore the filter.

23. For claim 17/12-17/16 and 18, the Fujita reference discloses the structure comprises at least one cell which comprises four filtration elements, and binding agent, having a sinuous shape and comprising at least three successive active portions which are connected to each other in series and arranged opposite adjacent planar lateral faces of the filtration elements of the cell (figure 1b objects 12 and 8, column 8, lines 11-20 states that a plurality of honeycomb segments are bonded together into a honeycomb structure, this would include honeycomb a honeycomb structure and binding agent as that shown in the current invention figure 1 object 11 and 17) and the at least first and second cells, at least one active portion of the binding agent of the first cell being arranged opposite a face of the filtration element of the second cell (figure 1b objects 8 and 12). The reference does the reinforcement element embedded in the binding agent, and therefore a common reinforcement element having a sinuous shape and comprising at least three successive active portions which are connected to each other in series and arranged opposite adjacent planar later faces of the filtration elements of the cell and the at least first and second cells, at least one active portion of the reinforcement element of the first cell being arranged opposite a face of the filtration element of the second cell.

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24. The Merriman reference discloses the reinforcement element within the binding agent (claim 1).

25. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Fujita et al. reference to include the reinforcement element being embedded in the binding agent (Merriman claim 1) and therefore a common reinforcement element having a sinuous shape and comprising at least three successive active portions which are connected to each other in series and arranged opposite adjacent planar later faces of the filtration elements of the cell because this provides a greater structural integrity to the adhesive and therefore the filter.

26. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Fujita et al. reference to include the at least first and second cells, at least one active portion of the reinforcement element of the first cell being arranged opposite a face of the filtration element of the second cell because by moving around the reinforcement element within the honeycomb, the best placement in order to maintain structural integrity of the structure while limiting costs can be found.

27. For claim 19, the Fujita et al. reference discloses said active portion is arranged between the first planar lateral face and the second planar lateral face, the binding agent being in direct contact with said first and second lateral faces (figure 1b objects 12 and 8)

28. For claim 36, the Fujita et al. reference discloses the filtration element comprises four active portions which are respectively opposite the four lateral planar faces of the

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first filtration element, said active portions being connected together so that the binding means is a sleeve surrounding the first filtration element (figure 1b objects 12 and 8, column 8, lines 11-20 states that a plurality of honeycomb segments are bonded together into a honeycomb structure, this would include honeycomb a honeycomb structure and binding agent as that shown in the current invention figure 1 object 11 and 17). The reference does the reinforcement element embedded in the binding agent, therefore having the reinforcement means as a sleeve surrounding the first filtration element. The Merriman reference discloses the reinforcement element within the binding agent (claim 1).

29. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Fujita et al. reference to include the reinforcement element being embedded in the binding agent (Merriman claim 1) and therefore having the reinforcement means as a sleeve surrounding the first filtration element because this provides a greater structural integrity to the adhesive and therefore the filter.

Response to Arguments

30. Applicant's arguments filed 11/11/2010 have been fully considered but they are not persuasive.

31. Applicant's arguments with respect to claim 12 (Fujita et al. on page 10 and the Adiletta and Merriam arguments on page 14) have been considered but are moot in view of the new ground(s) of rejection.

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32. For claim 12, the applicant argues that the Merriman reference is not directed to a particle filter and therefore one having ordinary skill in the art at the time the invention was made would not have considered Merriman.

33. The examiner disagrees. In response to applicant's argument that the Fujita and Merriman references are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). Analogous art is not limited to references in the field of endeavor of the invention but also includes references that would have been recognized by those of ordinary skill in the art as useful for applicant's purpose. In the current instance, the applicant's invention pertains to adhesion materials to bond honeycomb structures, which is being used by both the Fujita and Merriman references. It would have been obvious to one having ordinary skill in the art to look to look for any prior art pertaining to adhesion materials to increase the strength of the bond created by said material.

34. The applicant argues one having ordinary skill in the art would have to apply the whole teaching of Merriman, and would have been "led to replace layer 8 of Fujita by the composite adhesive of Merriman".

35. The examiner disagrees. One having ordinary skill in the art would not have replaced layer 8 of the Fujita reference with that of the composite adhesive of Merriman as it was known by the Fujita reference that the adhesive element would have to

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withstand high regeneration temperatures (column 7, lines 44-49). Furthermore it is well known within the art and taught by Fujita to use ceramic material within the honeycomb and adhesive material so that the entire filter is able to withstand high regeneration temperatures (column 7, lines 59-63 and Table 1). Lastly it is obvious to one having ordinary skill in the art to use a known technique in the adhesive art (to include reinforcement mesh in any adhesive) as taught by Merriman and shown above to obtain similar or same results (e.g. increase the strength of the adhesive bond).

36. The applicant argues that one "having ordinary skill in the art would have no reason to substitute glass fiber fabric of the intermediary structure resulting from the modification of Fujita in view Merriman, with the grid of Adiletta. This is because there is no link between glass fiber fabric having a reinforcement function and the metal grid having a support function.

37. The examiner disagrees. The Adiletta reference is merely used to show a different material for the reinforcement means provided by the combination of the Fujita and Merriman reference. Merely choosing a different material for the reinforcement, on the basis of its suitability for the intended use is a matter of design choice and would have been well within the level of ordinary skill. One having ordinary skill in the art would look to the Adiletta reference because the metal grid is a means for maintaining the particle filter in its position, and therefore is also a reinforcement means.

38. The applicant argues that there is no reason to substitute the glass fiber fabric of the intermediary structure with the grid of Adiletta.

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39. The examiner disagrees. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Fujita et al. reference the active portion being produced from a metal material (Adiletta column 6, lines 19-31) as it would be able to be exposed to the extreme exhaust temperatures as well as filter regeneration temperatures. Furthermore merely choosing a different material for the reinforcement, on the basis of its suitability for the intended use is a matter of design choice and would have been well within the level of ordinary skill.

40. The applicant argues that Fujita neither teaches nor suggests "the binding agents is in direct contact with the first and second lateral faces."

41. The examiner disagrees. The binding agent is both the cement layer and the undercoat layer (figure 2 objects 8-10).

42. For further support of the examiners' above rejections see Tyler US 3,251,165, Hiscock et al. US 6,426,029, Paterson et al. US 2004/0237440 and Matsufuji US 2004/0020145 all which disclose it is well known within the art at the time the invention was made to add metal reinforcements (including mesh) to cement materials to increase the strength of the bonding material.

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMBER ORLANDO whose telephone number is (571)270-3149. The examiner can normally be reached on Mon.-Thurs. (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AO

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1774